

TESTING AND YEAR 2000 COMPLIANCE

**International Symposium on the Year 2000
National Institute of Standards and Technology**

**William Farmer
June 10, 1997**

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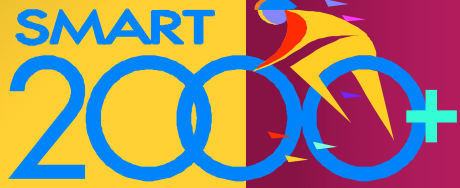
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Agenda

- + Who is BDM?
- + Year 2000 Challenges
- + Testing Foundation
- + Testing Activities
- + Conclusion

Who is BDM?

- + BDM is a multinational information technology company**
 - An information systems integrator
 - A technology services pacesetter
 - A solutions-oriented provider
 - A value added partner to government and industry
- + Business spans across diverse market segments**
 - **Private**
 - Health Care
 - Business Systems
 - Warehouse Automation
 - Manufacturing
 - **Government**
 - State Government
 - Defense Testing
 - Education Technologies
 - Environmental



How It Can Affect You

Traffic Lights

Trains

Air Traffic Control

Telephone Bills

Utility Bills

Life Insurance

Mortgages

Pensions **Stock Markets**

Social Security

Credit Cards

Laboratory Tests

Hospitals

Word Processing

Factories

Ballistic Missiles

**Satellite
Transmissions**

Reconnaissance

Radar

Passports

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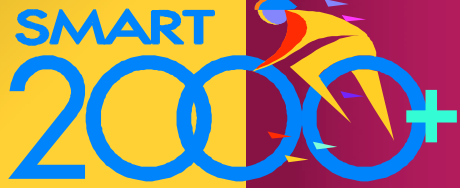
What a Typical Organization Faces

- + 80% of software programs process dates
- + 8,000+ programs in total portfolio
1,500 lines of code each
- + 2% - 5% of all code needs to be fixed
- + \$10M + to fix problems

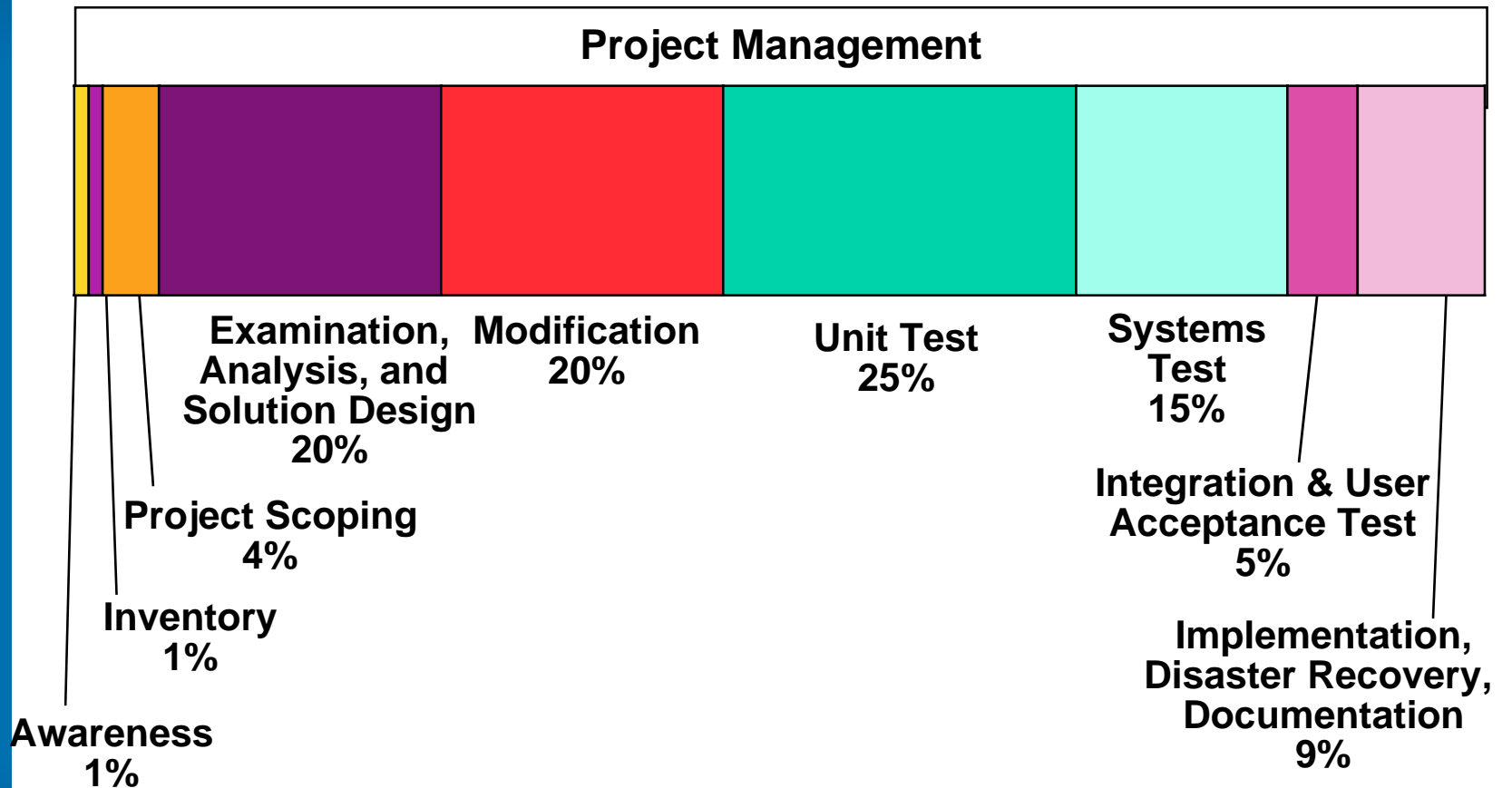


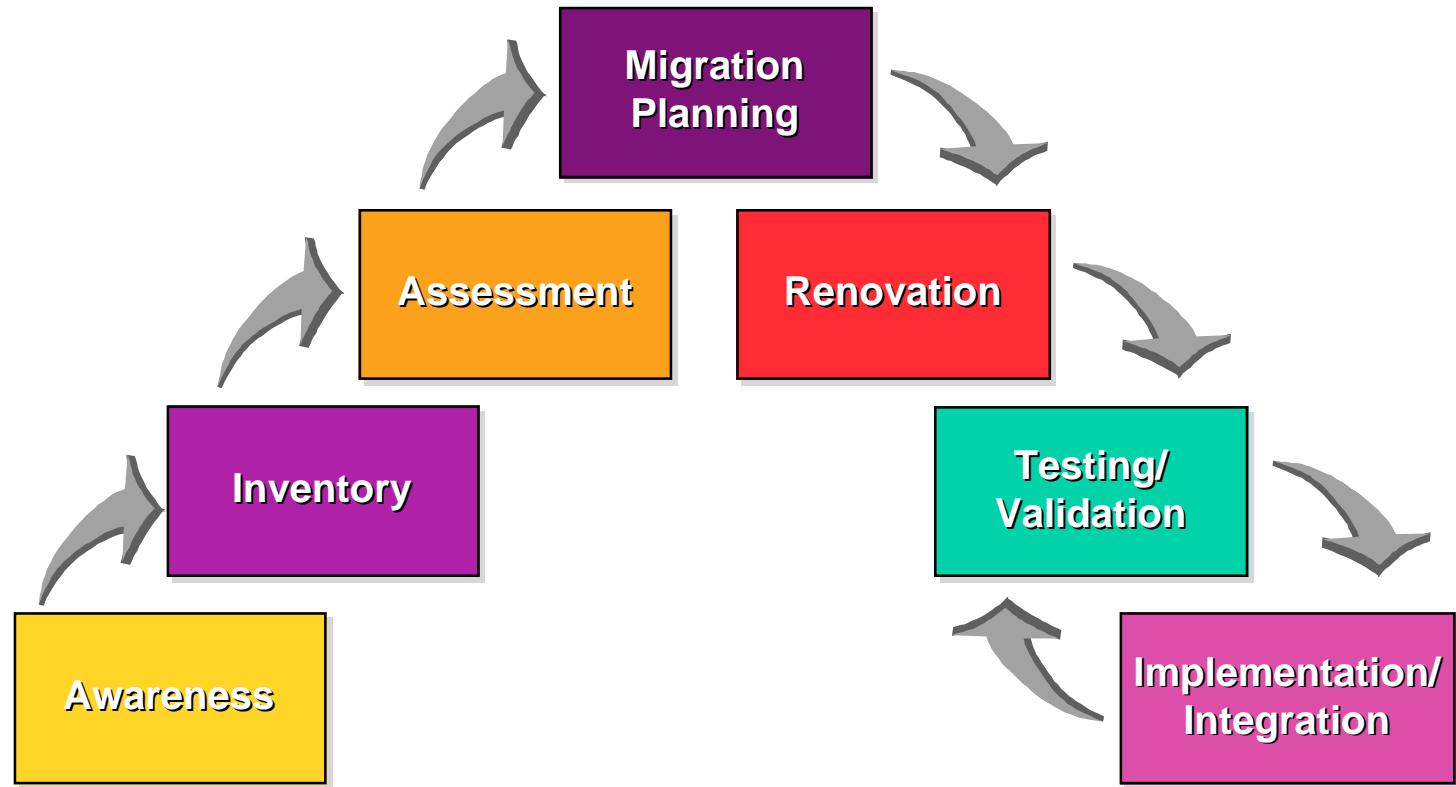
Resulting in Work distribution:

20% locating
20% repairing
60% testing



Year 2000 Life Cycle Activities





Project Management

Configuration Management

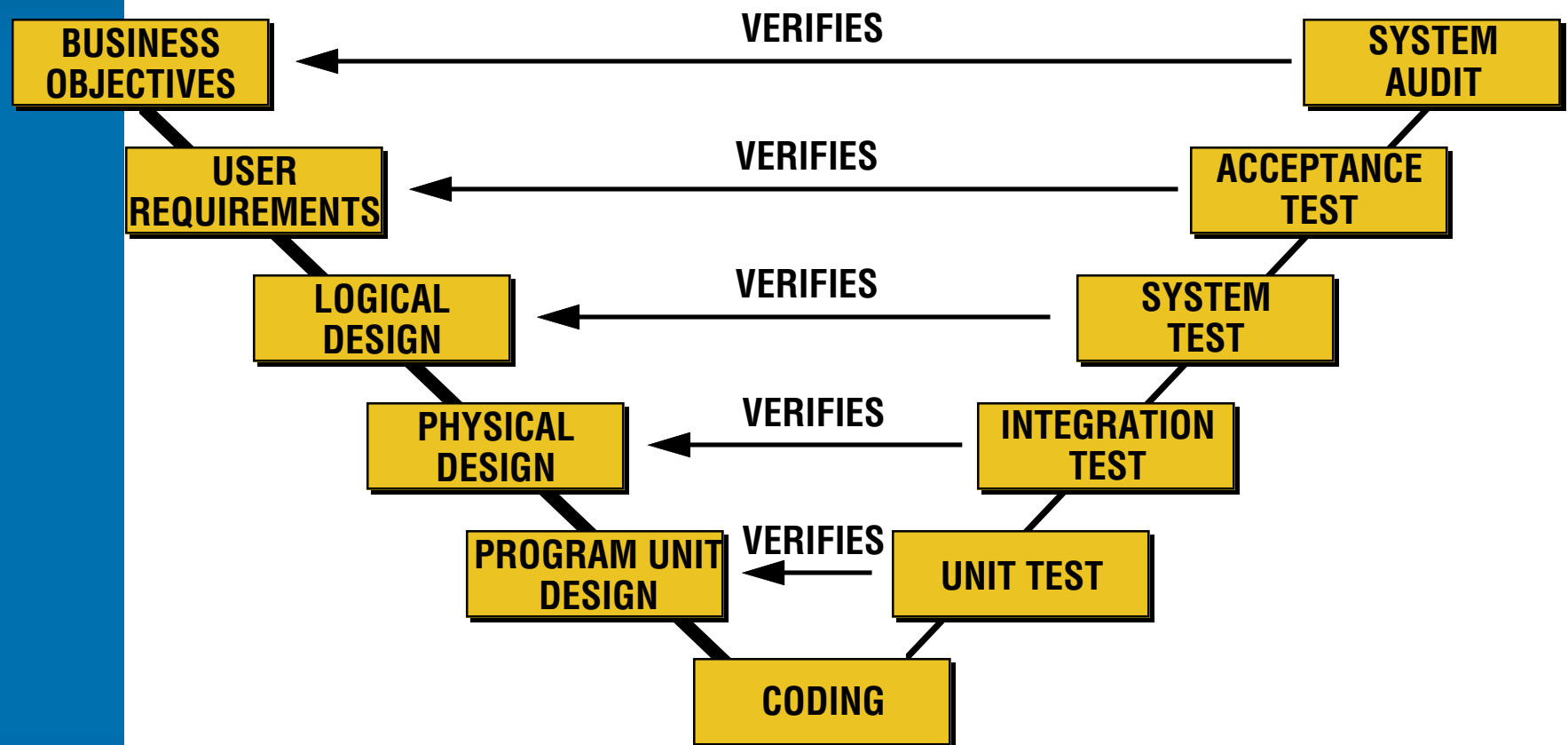
Quality Assurance

The Value of Testing is ...

- + To provide management with an evaluation of the the business risk of non Year 2000 compliance
- + To reduce the risk of business interruption and/or failure
- + To ensure that project requirements are fulfilled and results are acceptable



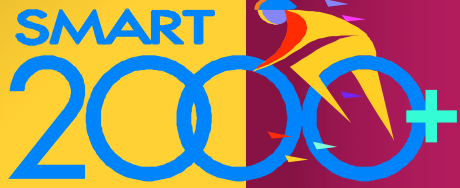
Test Framework



Source: Gartner Group

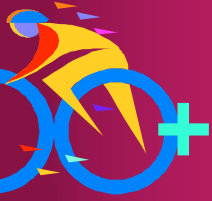
Test Strategy

- + Tailor test practices to the business factors critical to success**
- + Apply appropriate testing techniques and tools**
- + Address all levels of testing**
 - Integrated testing during renovation/validation/implementation
 - Application/System testing
 - Enterprise testing
- + Assign dedicated testing staff**



Test Approach for Year 2000

- + Address enterprise level test needs first**
 - Identify critical business functions
 - Perform application triage
- + Integrate test activities into the Year 2000 life cycle**
- + Establish the test team as an integral part of the total RVI activity**
- + Continue Year 2000 validation as part of regular maintenance testing**



Test Tactics

- + Build Year 2000 testing upon current testing practices and quality assurance procedures**
- + Design test data to be representative, but scaled down to minimum size to facilitate quick run time**
- + Design test cases to be operationally accurate**
- + Keep testing focused on date processing during Year 2000 effort**
- + Dedicate resources to the testing effort**

SMART



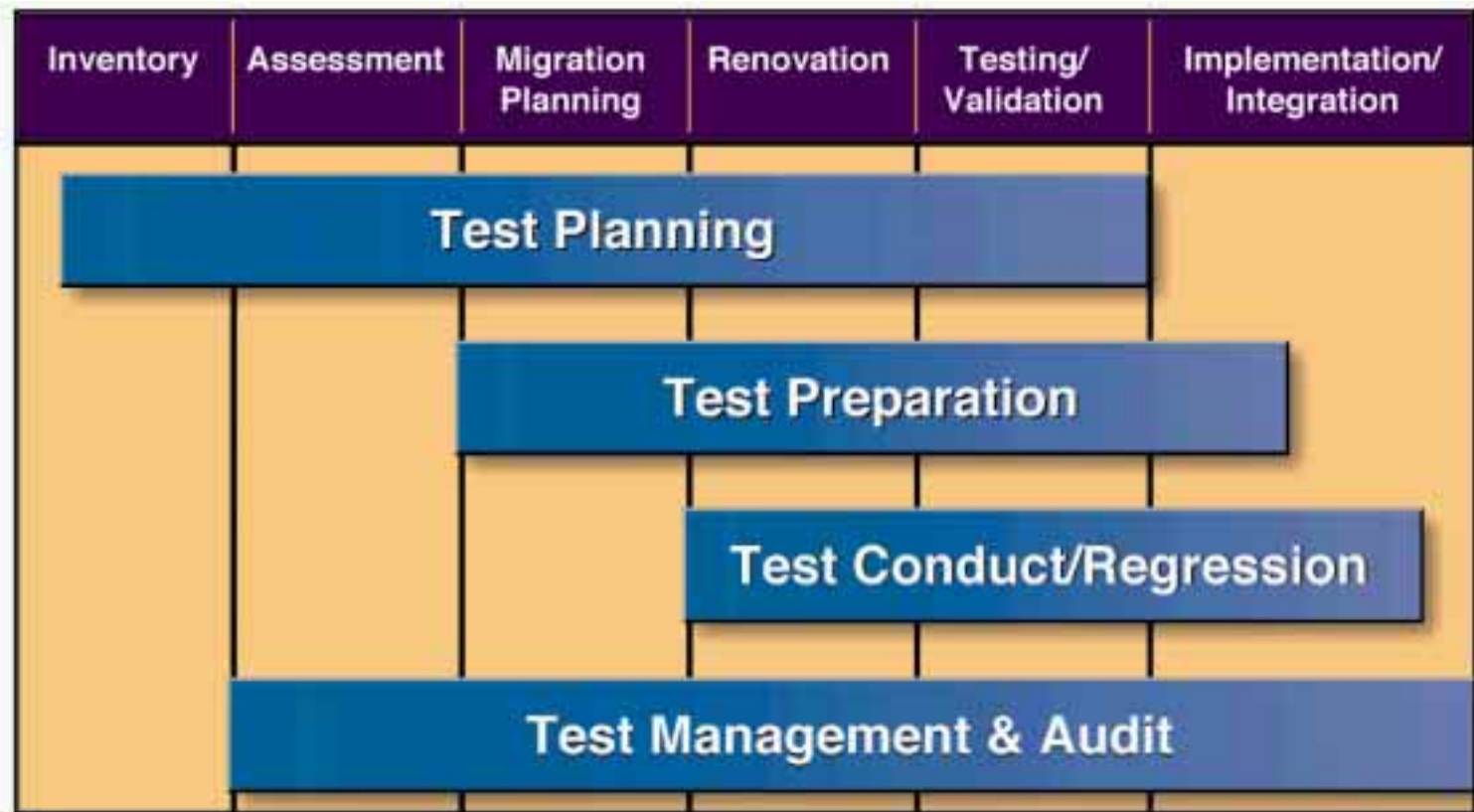
Use Tools Designed and Proven for the Test Environment

- + **File Comparison**
- + **Playback/Data Capture**
- + **Test Script Generation**
- + **Simulation/Clocks & Timers**
- + **Configuration Management**

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Test Activities



Year 2000 Test Activities

Inventory

- + **Activity**
 - Complete inventory of test and system-related data
 - Initiate test repository
- + **Results**
 - Inventory quick-look report
 - List of reuseable test items
- + **Benefit**
 - Clear understanding of what's available and what's needed for test



Assessment

+ Activities

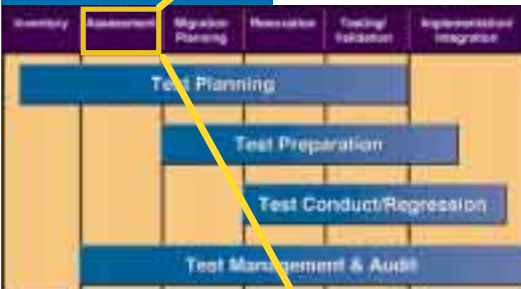
- Identify critical business functions
- Review/analyze factors that influence the test program
- Assess candidate tools/techniques

+ Results

- Critical business and test factors
- Candidate test tools/techniques
- Updated test repository

+ Benefit

- Knowledge base needed to define scope of test program, to bound test environment, to prioritize interfaces to functions



Migration Planning

+ Activities

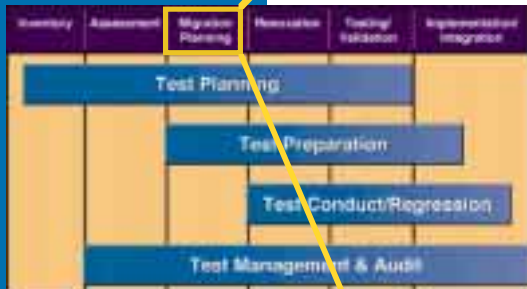
- Define/document test requirements and success criteria
- Formulate test strategy consistent with renovation approach
- Develop schedule, resource and cost estimates
- Develop tools recommendations

+ Results

- Test strategy and master test plan
- Validate and tools guides
- Updated test repository

+ Benefits

- Road map for the test program
- Procurement requirements for tools



Renovation

+ Activities

- Construct detailed test planning documentation
- Establish test environment
- Conduct test readiness review
- Conduct baseline test
- Develop acceptance test plan

+ Results

- Test procedures and test cases
- Baseline test results
- Management approval to proceed

+ Benefits

- Executable test plans that can be followed by team members
- Fully documented and validated set of test cases
- Decision point for management



Validation

+ Activities

- Execute Year 2000 compliance tests as planned
- Collect and analyze test data and prepare reports
- Develop acceptance test procedures

+ Results

- Software trouble reports (STR)
- Test report and signoff
- Compliant software released for implementation
- Acceptance test procedures

+ Benefits

- Catalogued, traceable, controlled set of test files, data and documentation
- Repeatable test process which can be reused to validate future system changes



Year 2000 Test Activities

Implementation

+ Activities

- Analyze anomalies
- Conduct regression testing
- Conduct acceptance test
- Produce report

+ Results

- Acceptance test report and signoff
- Software trouble reports
- Comprehensive test repository

+ Benefit

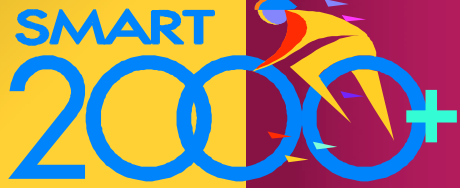
- Fully tested, user accepted Year 2000 compliant system





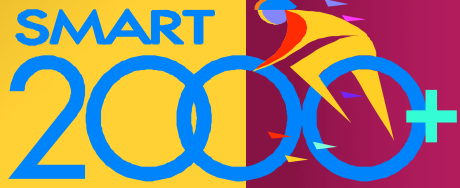
Compliance Validation for Solutions Other Than Renovation

- + Establish a compliance validation program**
 - **Defines compliance requirements for**
 - Application vendors
 - System software providers
 - In-house maintenance and development teams
 - **Provides testing guidelines**
 - **Defines documentation required to prove compliance**



Success Relies On . . .

- + Structured, repeatable test process**
- + Disciplined project management practices**
- + Adherence to performance standards**
- + Use of appropriate tools to address customer's environment**
- + Meeting industry standards that parallel client requirements (ISO/9000, SEI Capability Maturity Model, ITAA)**
- + Client participation**



Success Takes a Team Effort...

***A Partnership Between
Management, Users, and
IT Professionals***

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